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## AIRWORTHINESS DIRECTIVE

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For the reasons set out in the background section, the CASA delegate whose signature appears below issues the following Airworthiness Directive (AD) under subregulation 39.001(1) of CASR 1998. The AD requires that the action set out in the requirement section (being action that the delegate considers necessary to correct the unsafe condition) be taken in relation to the aircraft or aeronautical product mentioned in the applicability section: (a) in the circumstances mentioned in the requirement section; and (b) in accordance with the instructions set out in the requirement section; and (c) at the time mentioned in the compliance section.

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### Rolls Royce (Allison) Turbine Engines - AL501 Series

**AD/AL501/5                      Third and Fourth Stage Turbine Wheels                      6/2006**

**Applicability:** Rolls Royce (formerly DETROIT DIESEL ALLISON) Model 501-D13/501-D13A/501-D13D/501-D13E, and 501-D13H Engines equipped with third stage turbine wheel part numbers (P/N's) 6788833, 6842143, 6841223, and 6846553 or fourth stage turbine wheel P/N's 6738424 and 6843014.

- Requirement:**
1. Unless previously accomplished, remove and classify all third and fourth stage turbine wheels with unknown carbide precipitation classifications in accordance with the procedures specified in Detroit Diesel Allison Commercial Overhaul Information Letter No. 349 Rev. 1 or later FAA approved revision.
  2. Wheels both newly and previously classified with carbide precipitation classifications of "Heavy" must be removed from service in accordance with the maximum life limits specified in Compliance 2.
  3. Wheels both newly and previously classified with carbide precipitation classifications of "Medium Heavy" must be removed from service in accordance with the maximum life limits specified in Compliance 3.

Wheels of all other classifications may be returned to service and operated in accordance with the existing hourly life limits.

*Note: FAA AD 78-09-09 Amendment 39-3207 refers.*

- Compliance:**
1. Within 30 days after the effective date of this AD.
  2. For wheels of "Heavy" and unknown carbide precipitation classification which exceed 8000 total cycles upon the effective date of this AD compliance is required within 300 cycles; or  
  
For wheels of "Heavy" and unknown carbide precipitation classification which do not exceed 8000 total cycles upon the effective date of this AD, compliance is required prior to reaching 8300 total cycles.
  3. For wheels of "Medium Heavy" carbide precipitation classification which exceed 16,000 total cycles upon effective date of this AD, compliance is required within 200 cycles; or

## Rolls Royce (Allison) Turbine Engines - AL501 Series

AD/AL501/5 (continued)

For wheels of "Medium Heavy" carbide precipitation classification which have from 14,000 to 16,000 total cycles upon the effective date of this AD, compliance is required within the next 400 cycles or prior to exceeding 16,200 cycles whichever occurs first; or

For wheels of "Medium Heavy" carbide precipitation classification which have from 10,500 to 14,000 total cycles upon the effective date of this AD, compliance is required within the next 1000 cycles or prior to exceeding 14,400 total cycles whichever occurs first; or

For wheels of "Medium Heavy" carbide precipitation classification which have from 8000 to 10,500 total cycles on the effective date of this AD, compliance is required within the next 2000 cycles or prior to exceeding 11,500 total cycles whichever occurs first; or

For wheels of "Medium Heavy" carbide precipitation classification which have from 7000 to 8000 total cycles on the effective date of this AD, compliance is required prior to exceeding 10,000 cycles; or

For wheels of "Medium Heavy" carbide precipitation classification which do not exceed 7000 total cycles upon the effective date of this AD, compliance is required prior to exceeding 8000 cycles.

For purposes of this airworthiness directive a cycle is defined as one takeoff.

This Airworthiness Directive becomes effective on 8 June 2006.

**Background:** The requirements of this AD are to preclude failure of the 3<sup>rd</sup> or 4<sup>th</sup> Stage turbine wheels based upon the level of carbide precipitation. It has been determined that the level of carbide precipitation may affect the projected safe life of the turbine wheel.



James Coyne  
Delegate of the Civil Aviation Safety Authority

28 April 2006